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its varieties and *L. angustifolia*, until lately regarded as a variety of *L. capitata* also.

All of these forms were obtained within a few rods, or even feet, of each other, under substantially the same conditions of environment. It is not easy to conjecture what forces should cause such modifications, if they originated here, and the varieties have spread elsewhere to become more modified under different conditions of climate, soil, or other external forces. If they originated elsewhere, and have been brought together here, the same environment might be expected to lessen their differences, and cause them to approach a common type.

GENERAL NOTES.

The Willow Basket.—Mr. Guthrie's story is not without a parallel. See Darlington's *Flora Cestrica*, ed. 3, p. 279, for the following: "In Watson's Annals of Philadelphia we are told that the Yellow Willow, in this State [Pennsylvania] came originally from some wicker-work found sprouting in Dock Creek. It was seen by Dr. Franklin, who took it out and gave the cuttings to Charles Norris, who reared them on the grounds now the site of the Custom House, or late Bank of the United States."

A basket of unpeeled willow, combining much strength with flexibility, is quickly, cheaply and easily made, providing the material is readily accessible. Somewhere along the canal bank the boatman might cut his bundle of green twigs, and a half-hour or less of evening work would give him an excellent thing for carrying his potatoes in the hold. But the weight, which is simply astonishing to persons accustomed to handling ordinary willow ware, would be likely to insure its staying there, and so long as it did stay it would continue to be a very good basket, and would also be in condition to sprout if thrown into a ditch. But a more shakly thing than a willow basket woven green and afterwards dried it would be difficult to imagine! I have seen, with my own eyes, a first rate half-bushel feed basket of unpeeled willow go to complete wreck on a western farm in less than a week—a brief period not at all inconsistent with the retention of vitality in the stouter frame-work. On the other hand I have had too much experience in unsuccessful attempts to revive carelessly packed willow cuttings to place much confidence in the vitality of dried and withered twigs coming to hand after only a few days of transit through the mails.

Please observe I do not question Mr. Guthrie's statement of facts. I simply would state express belief that he very much overestimated the character and extent of the service done by his basket before it landed in the ditch.—M. S. B.

Variation and Environment.—Is variation an indication of changed environment? The red cedars which flank the road-side to my house present

the most dissimilar forms. No two of them are alike. What has environment to do in the case? And persimmons are often seedless in this part of the world, seldom, indeed, having their full complement of seeds. If I examine wild plants closely, I find few which do not vary in some respects from their neighbors of the same species. Either there is some ambiguity about the terms "variation" and "environment," or Dr. Sturtevant's proposition that "variation is an indication of changed environment," needs revision.—THOMAS MEEHAN.

Notulæ Californicæ.—*Chrysanthemum Leucanthemum*, L. is mentioned in the Botany of California as occurring at Santa Cruz, in fields, and is remarked upon as not likely to become the troublesome weed here which it has so long been in the Atlantic States. Being a perennial, its troublesome spreading is hardly to be feared on lands that are subjected to the plow and harrow every year; and in all the western part of California even the cultivated forage plants are annuals, such as wheat, oats, etc. Meadows of perennials, such as timothy, clover, etc., where the white weed finds time and place to thrive, are here unknown. However, among the middle ranges of the Sierra there are not wanting considerable tracts of perennial meadow, and in this region of the State the white weed may possibly prove troublesome.

In Nevada county, not far from Grass Valley, I noticed in July last, abundance of it. It appeared to grow luxuriantly, not only in the moist meadow lands of the valleys, but was also well established on the dry hillsides, under the partial shade of the scattered pines. It was a surprising thing to behold the veritable ox-eye daisy making itself perfectly at home in the society of the *Eriogonums* and the *Hemizonias*, and blooming with them in the midst of the summer drought.

Convolvulus sepium, L., new to California, has been found by the writer, during the past season, growing in great abundance in the brackish marshes along Suisun Bay, and also in similar situations near the town of Napa. It looks rather unlike the eastern forms, having a narrower and paler foliage, and being slightly pubescent. Its roots are within reach of tide-water in both localities, and its stems, attaining a height of not more than two or three feet, support themselves on the weeds and rushes, among the masses of which it grows. The corollas are very large and deeply tinged with rose.

Typha angustifolia, L., thus far reported only from the south part of the State, is much more abundant in the marshes about Suisun than is the commoner species. Its leaves and stems here often attain the height of ten or twelve feet.—EDW. L. GREENE, Berkeley, California.

The Anomalous Cobæa.—I venture to inquire whether the anomaly of the seedling Cobæa, given on page 12, may not be differently interpreted. May not the notched leaf be formed of the two cotyledons, united and turned to one side, and the pinnate leaf be the leaf of the next node, the internode between nearly undeveloped?—A. GRAY.

Heliotropism in Sun-flowers.—It is well understood, I believe, that the sun-flower does not turn with the sun, and that the poetical associations of the

ancient stories of the Heliotrope with our *Helianthus*, simply because it looks like the sun, is all there is in it. I have, however, shown, in the *Proceedings of the Academy of Natural Sciences, of Philadelphia*, by an actual observation and count of flowers as they opened, that *Helianthus mollis* has a southeasterly face on opening, and that it turns, not with the sun, but eastwardly as the head progresses towards maturity. These observations were made on a cultivated plant. Going across the continent last summer, I noticed this plant for several days from the car windows. It was then about opening its first heads of flowers, and I kept count of all I could well fix my eyes on. These also, with rare exceptions, faced horizontally to the southeast. The matter is one of some interest, and those who may have opportunities to watch *Helianthi*, as they open from day to day, would be pleased, I think, in making notes.—THOS. MEEHAN.

A Specific for Snake-bite.—While rambling among the mountains of Western North Carolina on a summer jaunt, we were startled to find that the inhabitants of those primitive wilds regarded the bite of one of the deadliest foes to mankind, the rattlesnake, with scarcely more concern than they did the sting of a bee or wasp. Strolling leisurely, gypsy-like, through that fresh, picturesque and beautiful region, we were halted one August morning in front of the toll-keeper's gate, at the entrance of the turnpike road over the grand chain of mountains known as Nantahala. A number of men came out of the house of the toll-taker; one of whom had his arm in a sling, but otherwise seemed in as perfect health and spirits as the most jovial of the group. It was ascertained that he had been bitten by a rattlesnake the day before, and that the remedy he had used was the chewing of the root of what he termed "Red Joint," or "Four Leaf." Taking a bit out of his vest pocket, he remarked, "With this, the rattlesnake's master, about me, I wouldn't mind being snake-bit every week." Curious to see the plant possessed of such wonderful virtues, for it was declared to be a positive antidote for the poison of any serpent or insect, we engaged him to accompany us until he could show us a specimen. Upon analysis it proved to be *Silene stellata*, the localisms of "red joint" and "four leaf" being readily explained by the red nodes at the junction of leaf and stem, and in the four-leaved verticels. We sometimes found a kindred species, the Fire Pink, *S. Virginica*, in its near neighborhood, whose cymes of crimson flame contrasted brilliantly with the panicles of delicate, white, fimbriate blossoms of the former.

The *S. stellata* seemed generally to seek cool, sheltered situations, yet not infrequently it was seen in company with its glowing sister, fire pink, on the high slopes of the mountains, their slender stems stirring with every light breeze, and gracefully nodding to ferns and flowers which flourished luxuriantly in the glens below. At Aquone, near the debouchment of Laurel creek into the Nantahala river, the banks of both streams being thickly set with Hemlock, Rhododendron, Azalea, Laurus, and *Kalmia latifolia*, the *S. stellata* grew in the damp, shady nooks beneath their branches, in rich profusion, and with finer fuller panicles than I had observed elsewhere. The *S. Virginica* is of somewhat

common growth in the mountainous districts of Upper Georgia, but I do not remember to have seen the *S. stellata* except in the North Carolina mountains.

Had Dr. Darwin known of the extraordinary curative properties ascribed to the plant, he would not, perhaps, have written of

“The *fell* Silene and her sister fair,”

or, as

“Skilled in destruction.”

I will mention that there was very little viscidiness about the species under consideration, not enough, I think, to entrap the feeblest insect. Quite the contrary, however, with the *S. Virginica*.—ELIZABETH L. H. WILLIS, *Charleston, S. C.*

The Genus *Podophyllum*.—This little genus is rapidly coming to the front in botanical interest and leaving far behind the idea that it is monotypical. Upon the very heels of the discovery of the Formosan *P. pleianthum* comes another new species from S. E. China. Dr. Hance, who describes it in the *Journal of Botany* for December, says that it agrees with “its insular ally in the color, number, and atrocious odor of its flowers, but differs in their extra-axillary position, just as the Himalayan *P. Emodi* disagrees with *P. peltatum*.” The inflorescence of the four species now known would form an interesting morphological study. In *P. peltatum* and *P. pleianthum* the leaf stalks can easily be called petioles, but in the two other species the prolongation above the leaf indicates a stem, or rather a branch from the rhizome. In the new plant, which is called *P. versipelle*, the leaves vary in outline from a square, parallelogram, triangle or pentagon, to a circle, and are either with or without lobes. Dr. Hance gives the following arrangement of the species:

I. *Diplostemon*.—Stamens twice as many as the petals. Flowers white, solitary, terminal between opposite leaves. American.—*P. peltatum*.

II. *Isostemona*.—Stamens of the same number as the petals. Asiatic.

Flowers white, solitary, extra-axillary.—*P. Emodi*.

Flowers purplish, aggregated.

Flowers between opposite terminal leaves.—*P. pleianthum*.

Flowers extra-axillary.—*P. versipelle*.

EDITORIAL NOTES.

A NEW MANUAL of the flowering plants of the Northern United States is in course of preparation by Prof. W. A. Kellerman, of the Kansas Agricultural College.

W. N. SUKSDORF's third fascicle of Washington Territory plants is very attractive, and the price for sets or desiderata is so reasonable that many botanists will doubtless take this opportunity to fill up some gaps.

IN VOL. IV, of the Proc. Dav. Acad., Dr. C. C. Parry describes four new plants from Southern and Lower California. They are *Phacelia suffrutescens*, *Ptelea aptera*, the specific name referring to the wingless fruit, *Polygala Fishior*, and *Gilia Orcuttii*.